

Lei Chen

List of Publications by Year in descending order

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Version: 2024-02-01

79
papers

3,765
citations

136950
32
h-index

133252
59
g-index

80
all docs

80
docs citations

80
times ranked

2891
citing authors

#	ARTICLE	IF	CITATIONS
1	Mechanochemical reactions of GaN-Al ₂ O ₃ interface at the nanoasperity contact: Roles of crystallographic polarity and ambient humidity. <i>Friction</i> , 2022, 10, 1005-1018.	6.4	38
2	Effect of humidity on friction, wear, and plastic deformation during nanoscratch of soda lime silica glass. <i>Journal of the American Ceramic Society</i> , 2022, 105, 1367-1374.	3.8	4
3	Nanoscopic humidity-dependent adhesion behaviors of 2D materials. <i>Applied Surface Science</i> , 2022, 572, 151394.	6.1	15
4	Environmental effects on superlubricity of hydrogenated diamond-like carbon: Understanding tribochemical kinetics in O ₂ and H ₂ O environments. <i>Applied Surface Science</i> , 2022, 580, 152299.	6.1	9
5	Role of Interfacial Bonding in Tribochemical Wear. <i>Frontiers in Chemistry</i> , 2022, 10, 852371.	3.6	9
6	Factors governing wear of soda lime silicate glass: Insights from comparison between nano- and macro-scale wear. <i>Tribology International</i> , 2022, 171, 107566.	5.9	8
7	Water adsorption on silica and calcium-boroaluminosilicate glass surfaces—Thickness and hydrogen bonding of water layer. <i>Journal of the American Ceramic Society</i> , 2021, 104, 1568-1580.	3.8	21
8	Origin of low friction in hydrogenated diamond-like carbon films due to graphene nanoscroll formation depending on sliding mode: Unidirection and reciprocation. <i>Carbon</i> , 2021, 173, 696-704.	10.3	48
9	Origin of High Friction at Graphene Step Edges on Graphite. <i>ACS Applied Materials & Interfaces</i> , 2021, 13, 1895-1902.	8.0	16
10	Role of interfacial water in adhesion, friction, and wear—A critical review. <i>Friction</i> , 2021, 9, 1-28.	6.4	53
11	Effect of Native Oxide Layer on Mechanochemical Reaction at the GaN-Al ₂ O ₃ Interface. <i>Frontiers in Chemistry</i> , 2021, 9, 672240.	3.6	2
12	Interplay between counter-surface chemistry and mechanical activation in mechanochemical removal of N-faced GaN surface in humid ambient. <i>Tribology International</i> , 2021, 159, 107004.	5.9	49
13	Friction and Wear Behaviors of Steel Ball Against Polyimide-PTFE Composite Under Rolling-Sliding Motion. <i>Tribology Letters</i> , 2021, 69, 1.	2.6	13
14	Temporary or permanent liquid superlubricity failure depending on shear-induced evolution of surface topography. <i>Tribology International</i> , 2021, 161, 107076.	5.9	17
15	Activation Volume in Shear-Driven Chemical Reactions. <i>Tribology Letters</i> , 2021, 69, 1.	2.6	27
16	Measuring nanoscale friction at graphene step edges. <i>Friction</i> , 2020, 8, 802-811.	6.4	11
17	Nanoasperity Adhesion of the Silicon Surface in Humid Air: The Roles of Surface Chemistry and Oxidized Layer Structures. <i>Langmuir</i> , 2020, 36, 5483-5491.	3.5	17
18	Role of mechanically-driven distorted microstructure in mechanochemical removal of silicon. <i>Applied Surface Science</i> , 2020, 520, 146337.	6.1	8

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19	Development of a symmetrical micro-beam minimizing horizontal drift for indentation and scratch. Review of Scientific Instruments, 2020, 91, 043702.	1.3	1
20	Study on the polishing mechanism of pH-dependent tribochemical removal in CMP of CaF ₂ crystal. Tribology International, 2020, 150, 106370.	5.9	11
21	Interplay between solution chemistry and mechanical activation in friction-induced material removal of silicon surface in aqueous solution. Tribology International, 2020, 148, 106319.	5.9	21
22	Identifying Physical and Chemical Contributions to Friction: A Comparative Study of Chemically Inert and Active Graphene Step Edges. ACS Applied Materials & Interfaces, 2020, 12, 30007-30015.	8.0	6
23	2D nano-materials beyond graphene: from synthesis to tribological studies. Applied Nanoscience (Switzerland), 2020, 10, 3353-3388.	3.1	89
24	Anisotropic Optical and Frictional Properties of Langmuir-Blodgett Film Consisting of Uniaxially Aligned Rod-Shaped Cellulose Nanocrystals. Advanced Materials Interfaces, 2020, 7, 1902169.	3.7	12
25	Friction-induced subsurface densification of glass at contact stress far below indentation damage threshold. Acta Materialia, 2020, 189, 166-173.	7.9	41
26	Roles of phase transition and surface property evolution in nanotribological behaviors of H-DLC: Effects of thermal and UV irradiation treatments. Applied Surface Science, 2020, 514, 145960.	6.1	19
27	Mechanochemical Reactions of Adsorbates at Tribological Interfaces: Tribopolymerizations of Allyl Alcohol Coadsorbed with Water on Silicon Oxide. Langmuir, 2019, 35, 15451-15458.	3.5	13
28	Chemical and physical origins of friction on surfaces with atomic steps. Science Advances, 2019, 5, eaaw0513.	10.3	62
29	Friction at single-layer graphene step edges due to chemical and topographic interactions. Carbon, 2019, 154, 67-73.	10.3	38
30	Effect of Atomic Corrugation on Adhesion and Friction: A Model Study with Graphene Step Edges. Journal of Physical Chemistry Letters, 2019, 10, 6455-6461.	4.6	15
31	Thickness and Structure of Adsorbed Water Layer and Effects on Adhesion and Friction at Nanoasperity Contact. Colloids and Interfaces, 2019, 3, 55.	2.1	54
32	Effect of Ambient Chemistry on Friction at the Basal Plane of Graphite. ACS Applied Materials & Interfaces, 2019, 11, 40800-40807.	8.0	10
33	Temperature-Dependent Mechanochemical Wear of Silicon in Water: The Role of Si-OH Surface Groups. Langmuir, 2019, 35, 7735-7743.	3.5	26
34	Effect of abrasive particle degradation on tribochemical wear of monocrystalline silicon. Wear, 2019, 426-427, 1240-1245.	3.1	2
35	Key Role of Transfer Layer in Load Dependence of Friction on Hydrogenated Diamond-Like Carbon Films in Humid Air and Vacuum. Materials, 2019, 12, 1550.	2.9	33
36	Self-lubrication of Si/SiO ₂ interface achieved through running-in at low sliding speed. Wear, 2019, 426-427, 828-834.	3.1	12

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37	Surface Structure Dependence of Mechanochemical Etching: Scanning Probe-Based Nanolithography Study on Si(100), Si(110), and Si(111). ACS Applied Materials & Interfaces, 2019, 11, 20583-20588.	8.0	30
38	Effect of counter-surface chemistry on defect-free material removal of monocrystalline silicon. Wear, 2019, 426-427, 1233-1239.	3.1	11
39	Dependence of water adsorption on the surface structure of silicon wafers aged under different environmental conditions. Physical Chemistry Chemical Physics, 2019, 21, 26041-26048.	2.8	23
40	Gradual degeneration of liquid superlubricity: Transition from superlubricity to ordinary lubrication, and lubrication failure. Tribology International, 2019, 130, 352-358.	5.9	11
41	Stress-enhanced dissolution and delamination wear of crystal CaF ₂ in water condition. Wear, 2019, 418-419, 86-93.	3.1	4
42	Differences in surface failure modes of soda lime silica glass under normal indentation versus tangential shear: A comparative study on Na ⁺ /K ⁺ ion exchange effects. Journal of the American Ceramic Society, 2019, 102, 1665-1676.	3.8	16
43	Nanomanufacturing of silicon surface with a single atomic layer precision via mechanochemical reactions. Nature Communications, 2018, 9, 1542.	12.8	124
44	Water Adsorption on Hydrophilic and Hydrophobic Surfaces of Silicon. Journal of Physical Chemistry C, 2018, 122, 11385-11391.	3.1	118
45	Nondestructive nanofabrication on monocrystalline silicon via site-controlled formation and removal of oxide mask. Applied Physics Express, 2018, 11, 116501.	2.4	7
46	Perspectives of the Friction Mechanism of Hydrogenated Diamond-Like Carbon Film in Air by Varying Sliding Velocity. Coatings, 2018, 8, 331.	2.6	13
47	Revealing silicon crystal defects by conductive atomic force microscope. Applied Physics Letters, 2018, 113, .	3.3	13
48	Effects of surface chemical groups and environmental media on tribochemical running-in behaviors of silicon surface. Tribology International, 2018, 128, 174-180.	5.9	17
49	Spectroscopic ellipsometry study of thickness and porosity of the alteration layer formed on international simple glass surface in aqueous corrosion conditions. Npj Materials Degradation, 2018, 2, .	5.8	44
50	Effect of Humidity on Friction and Wear—A Critical Review. Lubricants, 2018, 6, 74.	2.9	106
51	Effect of crystal plane orientation on tribochemical removal of monocrystalline silicon. Scientific Reports, 2017, 7, 40750.	3.3	37
52	Shear-Induced Structural Changes and Origin of Ultralow Friction of Hydrogenated Diamond-like Carbon (DLC) in Dry Environment. ACS Applied Materials & Interfaces, 2017, 9, 16704-16714.	8.0	127
53	Mechanochemistry at Solid Surfaces: Polymerization of Adsorbed Molecules by Mechanical Shear at Tribological Interfaces. ACS Applied Materials & Interfaces, 2017, 9, 3142-3148.	8.0	99
54	Effect of abrasive particle size on tribochemical wear of monocrystalline silicon. Tribology International, 2017, 109, 222-228.	5.9	29

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55	What Governs Friction of Silicon Oxide in Humid Environment: Contact Area between Solids, Water Meniscus around the Contact, or Water Layer Structure?. <i>Langmuir</i> , 2017, 33, 9673-9679.	3.5	33
56	Effect of mechanical interaction on the tribochemical wear of bare silicon in water. <i>Wear</i> , 2017, 376-377, 1307-1313.	3.1	10
57	Friction and Tribochemical Wear Behaviors of Native Oxide Layer on Silicon at Nanoscale. <i>Tribology Letters</i> , 2017, 65, 1.	2.6	30
58	Threshold contact pressure for the material removal on monocrystalline silicon by SiO ₂ microsphere. <i>Wear</i> , 2017, 376-377, 188-193.	3.1	28
59	Sliding Speed-Dependent Tribochemical Wear of Oxide-Free Silicon. <i>Nanoscale Research Letters</i> , 2017, 12, 404.	5.7	19
60	Humidity effects on tribochemical removal of GaAs surfaces. <i>Applied Physics Express</i> , 2016, 9, 066703.	2.4	14
61	Investigation of silicon wear against non-porous and micro-porous SiO ₂ spheres in water and in humid air. <i>RSC Advances</i> , 2016, 6, 89627-89634.	3.6	23
62	Role of water in the tribochemical removal of bare silicon. <i>Applied Surface Science</i> , 2016, 390, 696-702.	6.1	37
63	Atomic insight into tribochemical wear mechanism of silicon at the Si/SiO ₂ interface in aqueous environment: Molecular dynamics simulations using ReaxFF reactive force field. <i>Applied Surface Science</i> , 2016, 390, 216-223.	6.1	89
64	Boundary lubrication effect of organic residue left on surface after evaporation of organic cleaning solvent. <i>Wear</i> , 2016, 350-351, 21-26.	3.1	36
65	Humidity Dependence of Tribochemical Wear of Monocrystalline Silicon. <i>ACS Applied Materials & Interfaces</i> , 2015, 7, 14785-14792.	8.0	80
66	Tribology of Si/SiO ₂ in Humid Air: Transition from Severe Chemical Wear to Wearless Behavior at Nanoscale. <i>Langmuir</i> , 2015, 31, 149-156.	3.5	64
67	Running-in process of Si-SiO _x /SiO ₂ pair at nanoscale—Sharp drops in friction and wear rate during initial cycles. <i>Friction</i> , 2013, 1, 81-91.	6.4	50
68	Investigation of humidity-dependent nanotribology behaviors of Si(1 0 0)/SiO ₂ pair moving from stick to slip. <i>Applied Surface Science</i> , 2013, 265, 192-200.	6.1	38
69	Role of Tribochemistry in Nanowear of Single-Crystalline Silicon. <i>ACS Applied Materials & Interfaces</i> , 2012, 4, 1585-1593.	8.0	93
70	Water Adsorption Isotherms on CH ₃ -, OH-, and COOH-Terminated Organic Surfaces at Ambient Conditions Measured with PM-RAIRS. <i>Langmuir</i> , 2012, 28, 15263-15269.	3.5	30
71	Coadsorption of <i>n</i> -Propanol and Water on SiO ₂ : Study of Thickness, Composition, and Structure of Binary Adsorbate Layer Using Attenuated Total Reflection Infrared (ATR-IR) and Sum Frequency Generation (SFG) Vibration Spectroscopy. <i>Journal of Physical Chemistry C</i> , 2012, 116, 9909-9916.	3.1	35
72	Nanofretting behaviours of ultrathin DLC coating on Si(100) substrate. <i>Wear</i> , 2011, 271, 1980-1986.	3.1	19

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73	Effects of gas adsorption isotherm and liquid contact angle on capillary force for sphere-on-flat and cone-on-flat geometries. Journal of Colloid and Interface Science, 2010, 352, 549-557.	9.4	39
74	Effects of Surface Chemistry on Structure and Thermodynamics of Water Layers at Solid-Vapor Interfaces. Journal of Physical Chemistry C, 2009, 113, 2128-2133.	3.1	83
75	Macro- to Nanoscale Wear Prevention via Molecular Adsorption. Langmuir, 2008, 24, 155-159.	3.5	97
76	Nanotribology and MEMS. Nano Today, 2007, 2, 22-29.	11.9	329
77	Effects of adsorbed water layer structure on adhesion force of silicon oxide nanoasperity contact in humid ambient. Journal of Chemical Physics, 2006, 124, 174712.	3.0	205
78	Evolution of the Adsorbed Water Layer Structure on Silicon Oxide at Room Temperature. Journal of Physical Chemistry B, 2005, 109, 16760-16763.	2.6	614
79	Inverse Relationship between Thickness and Wear of Fluorinated Graphene: "Thinner Is Better", Nano Letters, 0, , .	9.1	10